



# **CREATING THE MUNICIPAL WATER QUALITY INVESTIGATIONS SUMMARY REPORT**

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Environmental Scientist  
MWQI Face-to-Face  
July 27, 2011**

- Reason for the Report
- The Creation Process
- Time Line of Program
- Major Findings
- What's in the Report

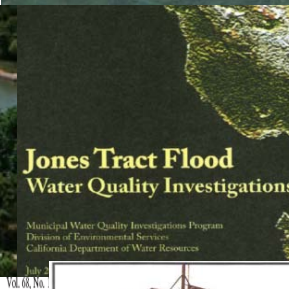
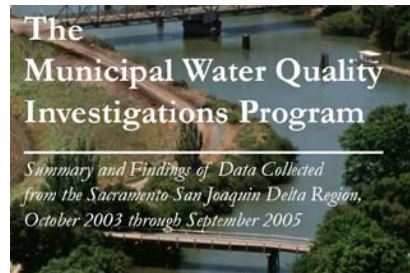
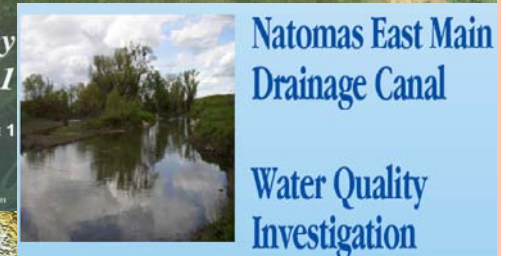
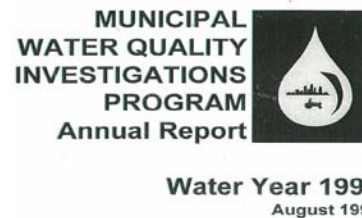
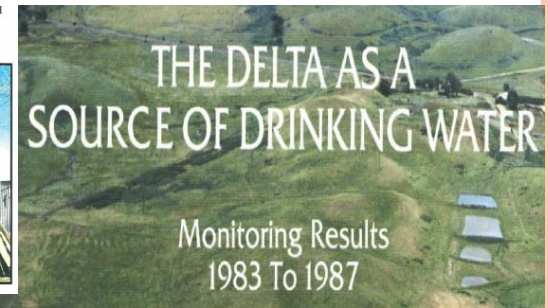


# THE REASON WHY

- Everything was all over the place
  - Collect
  - Archive
  - Library
  - Access
- Introductory resource
  - Reason for the program
  - Historical background of the program
  - Summarize the accomplishments of the program



Seasonal Water Quality Changes in Flooded Peat Soil Environments Due to Peat Soil, Water Depth, and Water Exchange Rate



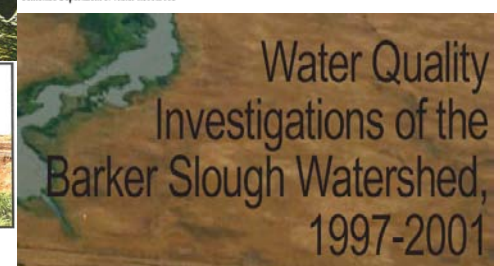
APPLIED AND ENVIRONMENTAL MICROBIOLOGY, Dec. 2002, p. 5952-5955  
0090-2240/02/594-0040 DOI: 10.1128/AEM.68.12.5952-5955.2002  
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*Cryptosporidium* and *Giardia* Recoveries in Natural Waters by Using  
Environmental Protection Agency Method 1623

Carol L. DiGiorgio,<sup>1\*</sup> David A. Gonzalez,<sup>2</sup> and Christopher C. Huit<sup>2</sup>



Marvin Jung and Associates, Inc.



# THE CREATION PROCESS

## Pre-writing

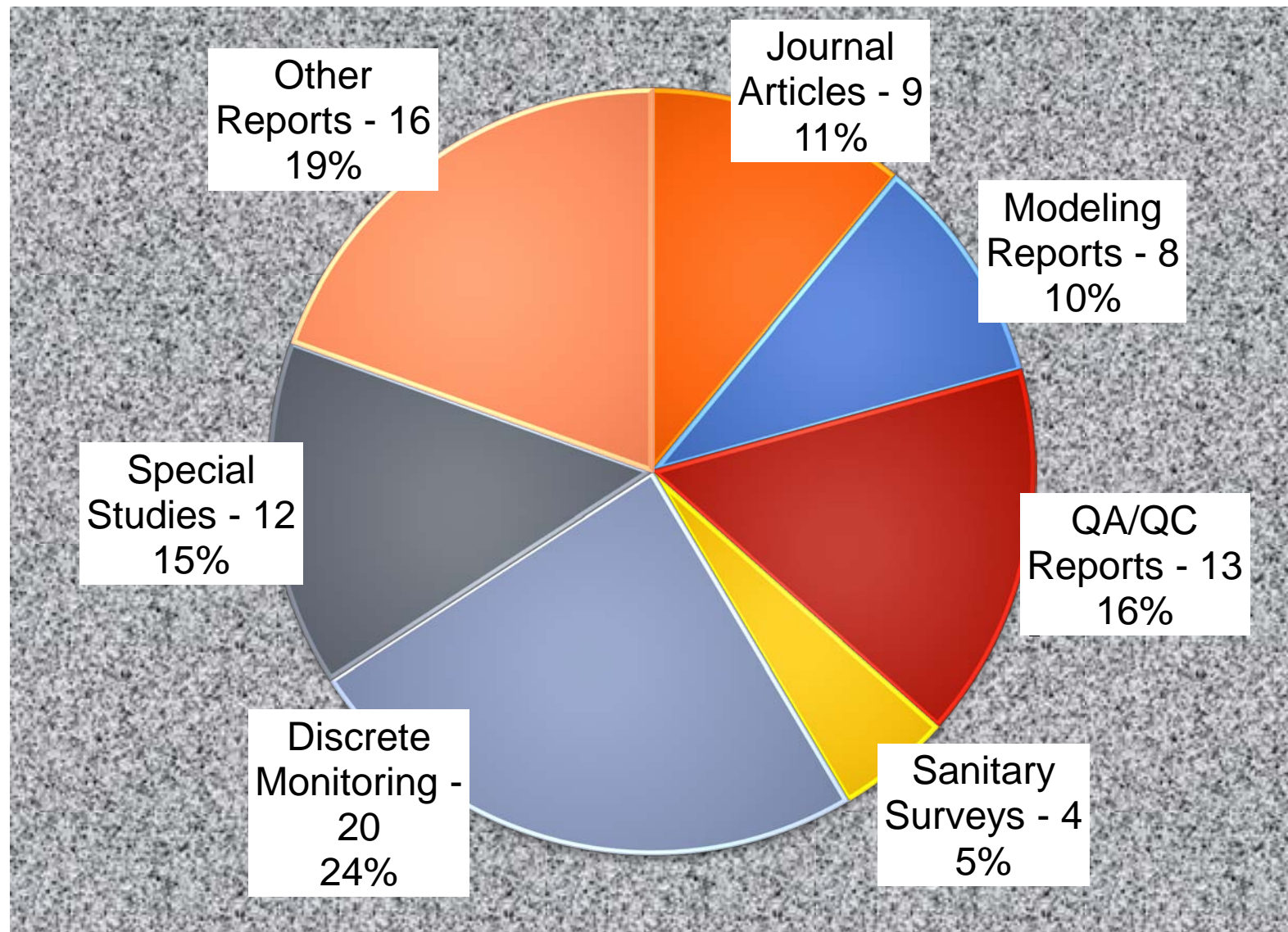
- Collect
- Archive location
- Catalogue
- Scan
- Print
- Website

## Writing

- Read
- Research unfamiliar ideas or concepts
- Months and months of reading and re-reading
- Write, edit, delete, re-write, repeat

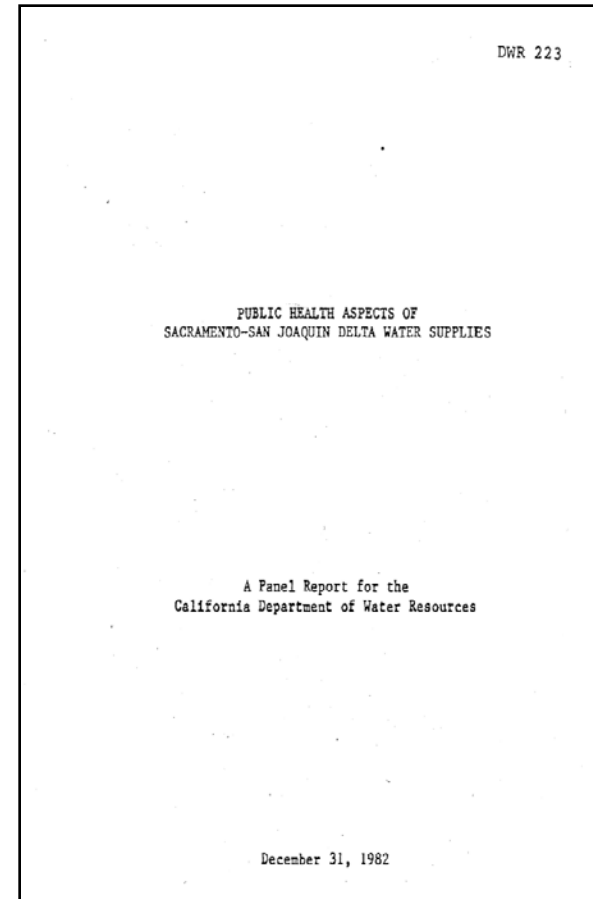


# 82 REPORTS = 10,498 PAGES




# 1980's GENESIS

- November 1979 – EPA Safe Water Drinking Act
- April 1982 – SWP Trihalomethane (THM) Study
- August 1982 –Scientific Panel Appointed
- December 1982 – Panel's report: Public Health Aspects of Sacramento-San Joaquin Delta Water Supplies
- 1983 - Implemented the Interagency Delta Health Aspects Monitoring Program (IDHAMP)
- 1985 – 1<sup>st</sup> IDHAMP program report
- 1986 – 2<sup>nd</sup> IDHAMP program report
- 1987 – Delta Islands Drainage Investigation
- 1989 – The Delta as a Source of Drinking Water
- Marvin Jung and Associates, Inc.
  - Assisted in many of the early reports
  - Created multiple reports for the program





# 1990's MWQI FORMED

- 1990 – MWQI created
  - 1993 – Autosamplers installed in the Delta
  - 1995 – Program changes
    - Became funded under the new MWQI program agreement
    - Real-Time Monitoring Program
  - 1996 – Sanitary Survey
    - North Bay Aqueduct Watershed Study 1996-2001
  - 1997 – 2002 Urban Sources and Loads
    - Steelhead Creek aka NEMDC
  - 1997 – 2000 SMARTS tanks
  - January 1999 – Sievers TOC analyzer Sacramento River at Hood
  - 1993 - 1998 – Multiple QA/QC documents created
  - Reports
    - Candidate Regions for Treatment to Reduce Organic Carbon Loads
    - Delta Island Drainage Volume Estimates 1954-55 vs 1995-96
    - Dredge Material Reuse studies 1995-2000
- 



## 2000's MWQI EXPANSION

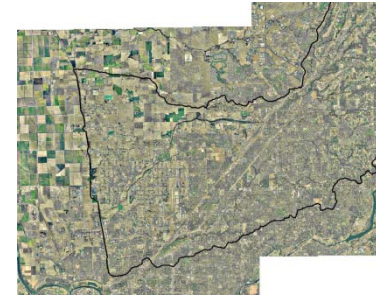
- 2000's – Real time monitoring at 4 stations connected to CDEC
  - Hood - Sievers
  - Banks – Shimadzu & Dionex
  - Vernalis – Shimadzu & Dionex
  - Jones – Shimadzu & Metrohm
- 2002 – Cryptosporidium and Giardia recoveries using EPA Method 1623 journal article
- 2003 – Carbon Isotope Study
- 2004 – Staten Island
- 2004 – Jones Tract flood
- 2005 – 3 journal articles from the Carbon Quality and Sources Study
- 2005 – Dionex pilot project begins
- 2006 – RTDF-CP initiated
- 2007 – Comparison of Organic Carbon Analyzers journal article
- 2008 – Nitrosamines (NDMA) DBP
- 2009 – Lathrop Urban Sources and Loads study
- DSM2 – Extension of DSM2 to the California Aqueduct, South Bay Aqueduct and Delta-Mendota Canal





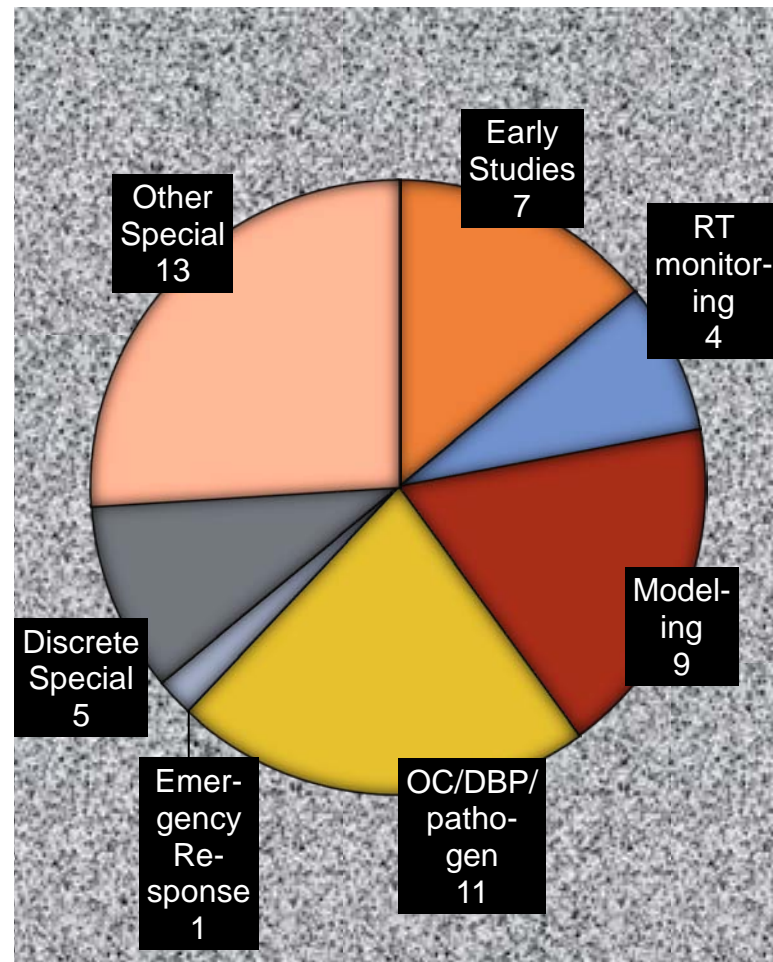
# MAJOR MWQI FINDINGS

- Sievers Pilot Study
- NEMDC
- Urban Loads
- Jones Tract Flood
- Carbon Isotope Study
- Staten Island



# 50 SUMMARIES IN THE REPORT

- 7 Early Studies from the 1980's
- 4 Real-Time Monitoring Program
- 9 Modeling
- 11 Organic Carbon/DBP/Pathogen
- 1 Emergency Response
- 5 Discrete Monitoring Special Studies
- 13 Other Special Studies
- Not included – QA/QC documents, work plans



# MWQI Publications

[http://www.water.ca.gov/waterquality/drinkingwater/mwqi\\_reports.cfm](http://www.water.ca.gov/waterquality/drinkingwater/mwqi_reports.cfm)

## Discrete Monitoring:

- MWQI summary of monitoring results 1988 - 1989
- MWQI summary of monitoring results 1990
- MWQI 5 year report 1987 - 1991
- MWQI Biennial Memorandum Report 1992-1993
- MWQI summary of monitoring results WY 1994
- MWQI annual report WY 1995
- MWQI annual report 10/1995 - 12/1996
- MWQI annual report 1997-1998
- Summary and Findings of Data Collected from the Sacramento-San Joaquin Delta Region, October 1998 through September 2001
- Summary and Findings of Data Collected from the Sacramento-San Joaquin Delta Region, October 2001 through September 2003
- Summary and Findings of Data Collected from the Sacramento-San Joaquin Delta Region, October 2003 through September 2005
- Summary and Findings of Data Collected from the Sacramento-San Joaquin Delta Region, October 2005 through September 2007
- Summary and Findings of Data Collected from the Sacramento-San Joaquin Delta Region, October 2007 through September 2009
- Interagency Delta Health Aspects Monitoring Program Project Report 1983 - 1984
- Interagency Delta Health Aspects Monitoring Program Project Report 1985 - 1986
- The Delta as a Source of Drinking Water Monitoring Results 1983 - 1987
- The Delta as a Source of Drinking Water Summary of Monitoring Results 1983 - 1987
- MWQI 5 year report 1987 - 1991 summary

## Program Reports

- Jones Tract Flood Water Quality Investigations
- Natomas East Main Drainage Canal Water Quality Investigation Initial Technical Report
- Barker Slough Watershed, N. Bay Aqueduct, Phase 1
- Interagency Delta Health Aspects Delta Water Quality 1983-1987
- Candidate Delta Regions for reductions OC loads
- Seasonal Water Quality Changes in Flooded Peat Soil Environments due to Peat Soil, Water Depth, and Water Exchange Rate
- Delta Island Drainage Investigation IDHAMP 1987-1988
- Sievers Organic Carbon pilot study report
- Real-time Monitoring of Organic Carbon in the Sacramento River and California State Water Project using Process Analyzers
- Real-time, Continuous Monitoring of Bromide and Nutrients at Harvey O. Banks Pumping Plant and San Joaquin River near Vernalis
- A Trial Experiment On Studying Short-Term Water Quality Changes In Flooded Peat Soil Environments
- Steelhead Creek Water Quality Investigation
- Water Quality Investigation of the Barker Slough Watershed 1997-2001-
- QA-QC Study Organic Carbon by UVA
- Staten Island Wildlife-Friendly Farming Demonstration - Water Quality Monitoring Report

## Journal Articles

- Comparisons of Organic Carbon Analyzers and Related Importance to Water Quality Assessments
- Cryptosporidium and Giardia Recoveries in Natural Waters by Using Environmental Protection Agency Method 1623
- Movement of Diuron and Hexazinone in Clay Soil and Infiltrated Pond Water
- Filter Pore Size Selection to Characterize Dissolved Organic Carbon and Trihalomethane Formation Potential from Soils
- Size and XAD Fractions of THMP from Soils
- Effects of Urbanization on Organic Carbon in Sacramento River
- Trihalomethane Formation Potential of Filter Isolates of Electrolyte-Extractable Soil Organic Carbon
- Trihalomethane Reactivity of Water- and Sodium Hydroxide-Extractable Organic Carbon Fractions from Peat Soils

- Identifying Sources of Dissolved Carbon in Agriculturally Dominated Rivers Using Radiocarbon Age Dating: Sacramento-San Joaquin River Basin, California

## Modeling Reports

- Proof of Concept of Forecasting California Aqueduct Water Quality
- Proof of Concept Water Quality Forecast Results
- Seasonal Water Quality Forecast Proof of Concept
- DSM2 Extension for the California Aqueduct, South Bay Aqueduct, and Delta-Mendota Canal
- DSM2 Extension for the California Aqueduct, South Bay Aqueduct, and Delta-Mendota Canal Phase 2 Analysis
- Modeled Impacts of Delta Peat Island Drainage on Organic Carbon Levels at Selected Delta Municipal Water Intakes
- Revision of Representative Delta Island Return Flow Quality for DSM2 and DICU Model Runs

## QA/QC Reports

- Bryte Chemical Laboratory Quality Assurance Manual
- Compilation of Federal and State Drinking Water Standards and Criteria
- Compilation of Soil and Sediment Standards Criteria and Guidelines
- Guidelines for Preparing Quality Assurance Project Plans
- MWQI Program Field Manual
- Bryte Lab Services
- Water Quality Field Manual
- Preparing Quality Assurance Project Plans
- Quality Assurance Guidelines for Analytical Laboratories
- Quality Assurance Management Plan for Environmental Monitoring Programs
- Sampling Manual for Environmental Measurement Projects
- Quality Assurance Project Plan for Real-Time, Continuous Monitoring of Bromide and Nutrients at Harvey O. Banks Pumping Plant and San Joaquin River near Vernalis
- Quality Assurance Project Plan for Real-Time Monitoring of Organic C in the Delta

## MWQI SWP Sanitary Surveys

- 1996 Sanitary Survey Update Report
- 2001 Sanitary Survey Update Report
- 2006 California State Water Project Watershed Sanitary Survey Update

## Other Water Quality and DWR Publications

- 1997 Compendium of Water Quality Aug 1998
- Byron Tract Baseline Study - Mar 1998
- Delta Drainage Volume Estimates 1954-1955 vs. 1995-1996
- Delta Island Drainage IDHAMP 1990
- Dredged Materials Grant Line Canal SD improvements
- ISI In Delta storage draft summary
- Interagency Delta Health Aspects Delta Water Quality
- RT monitor OC in Sac River and SWP w analyzers
- RTDF Proof of Concept Final Summary
- Real-Time, Continuous Monitoring of Bromide and Nutrients at Harvey O. Banks Pumping Plant and San Joaquin River near Vernalis
- Sources and Magnitudes WQ constituents of concern in drinking water
- Twitchell Island Dredge Material Reuse sites
- Victoria Island Dredge Material Reuses sites

[http://www.water.ca.gov/waterquality/drinkingwater/mwqi\\_reports.cfm](http://www.water.ca.gov/waterquality/drinkingwater/mwqi_reports.cfm)

# • QUESTIONS?

## • STATUS

The report has undergone review

The edits are being incorporated

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